

Taylor-Scott Building 311 West Main Street Frankfort, Kentucky 40601-1807 502.223.2104

Fax: 502.227.7681

Mail: P.O. Box 495 Frankfort, Kentucky 40602-0495

April 13, 2005

RECEIVED KENTUCKY STATE BOARD ON

APR 1 3 2005

ELECTRIC GENERATION AND TRANSMISSION SITING

Kentucky State Board on Electric Generation and Transmission Siting Kentucky Public Service Commission 211 Sower Blvd. Frankfort, KY 40601

RE:

Application of DTE Wickliffe, LLC

Case No. 2005-0108

Dear Board:

Attached hereto please find ten bound copies of the completed application of the Applicant, DTE Wickliffe, LLC for authorization to site a 13 megawatt merchant electric generating facility in Ballard County, Kentucky.

You will also find a check in the amount of \$40,000.00 as the initial sum to cover cost of review, subject to adjustment at the conclusion of this proceeding, and an electronic disk with the complete application thereon.

There is also contained in the Application a request for a deviation from the setback requirements as explained in more detail within the application itself.

Thank you very much for your cooperation and attention to this matter. If there are any questions please do not hesitate to contact me.

Sincerely,

George L. Seay, Ir.

Wyatt, Tarrant & Combs, LLP

GLS/jlm Enclosures



Taylor-Scott Building 311 West Main Street (40601-1807) P.O. Box 495 Frankfort, Kentucky 40602-0495

RECEIVED APR 1 3 2005
APR 1 3 2005
ELECTRIC GENERATION ARE
TRANSMISSION STEINS

Kentucky State Board on Electric Generation and Transmission Siting Kentucky Public Service Commission 211 Sower Blvd.
Frankfort, KY 40601

## **DTE Energy**



# APPLICATION FOR A CERTIFICATE TO CONSTRUCT A MERCHANT ELECTRIC GENERATING FACILITY

### **SUBMITTED TO**

# THE KENTUCKY BOARD OF ELECTRIC GENERATION AND TRANSMISSION SITING

BY

DTE Wickliffe, LLC

an affiliate of

DTE ENERGY SERVICES, INC.

**APRIL 12, 2005** 





### TABLE OF CONTENTS

TAB	
	STATUTORY PROVISION: KRS 278.706
	RESPONSIBLE PERSON: CHARLES K. HOLT DTE WICKLIFFE LLC
A.	APPLICANT2
B.	DESCRIPTION OF THE PROPOSED SITE2
C.	PUBLIC NOTICE2
D.	STATEMENT OF COMPLIANCE2
E.	SETBACK REQUIREMENTS3
F.	PUBLIC INVOLVEMENT ACTIVITIES
G.	CONSIDERATION OF ALTERNATIVE SITES
H.	PROOF OF SERVICE3
I.	EFFECT ON ELECTRICITY TRANSMISSION SYSTEM3
J.	LOCAL ECONOMIC IMPACT3
K.	ENVIRONMENTAL RECORD4
L.	SITE ASSESSMENT REPORT4
	EXHIBITS
EXH	IBIT A1 – TOPOGRAPHICAL MAP OF PROPOSED SITE2
EXH	IBIT A2 – AERIAL PHOTOGRAPH OF PROPOSED SITE3
	IBIT C – EVIDENCE OF PUBLIC NOTICE4
EXH	IBIT H - PROOF OF SERVICE5
EXH	IBIT I - TRANSMISSION SYSTEM IMPACT STUDY6
TAB	2. EXHIBIT L - SITE ASSESSMENT REPORT
	STATUTORY PROVISION: KRS 278.708
	RESPONSIBLE PERSON: CHARLES K. HOLT DTE WICKLIFFE LLC
	APPENDIX L1 - PROXIMITY TO SENSITIVE AREAS

APPENDIX L4 - PROPOSED UTILITY INTERCONNECTIONS

APPENDIX L7 – REQUEST FOR DEVIATION FROM SETBACK REQUIREMENTS

APPENDIX L5 - INGRESS AND EGRESS ROUTING

### APPLICATION

DTE Wickliffe, LLC ("DTEW") is submitting this application to the Kentucky State Board on Electric Generation and Transmission Siting (the Siting Board) requesting approval and issuance of a certificate for construction of a 13MW open-loop biomass cogeneration facility. The proposed facility will be constructed within the boundaries of the MeadWestvaco Paper Mill in Ballard County, approximately one mile south of the City of Wickliffe.

New construction for this project is limited to the addition of a steam turbine generator ("STG"), the building which houses the STG and the interconnection for the supply of utilities by MeadWestvaco and the delivery of electricity to the Westvaco Substation located on the MeadWestvaco site and owned and maintained by Kentucky Utilities.

This application is submitted pursuant to KRS 278.706 by DTE Wickliffe, LLC. On its face this proposal may appear to be exempt from the requirements of KRS 278.700. A close review of the definitions in 278.700(7) reveals that DTE Wickliffe does not meet the definition exemption requirements set out in 16 U.S.C. § 796(18)(b) and the regulations promulgated pursuant thereto as it relates to upstream ownership. Because of its affiliate relationship, DTE Wickliffe, LLC cannot avail itself of the exemption and must complete the application process although the project in all other respects qualifies as a "qualifying cogeneration facility."

### A. APPLICANT.

In accordance with KRS 278.706 DTEW submits the following application for issuance of a certificate to construct a merchant generating facility (the "Facility") to be located at the MeadWestvaco Paper Mill in Ballard County, near Wickliffe, Kentucky. DTEW shall be the sole owner of the facility and shall have the following permanent address and telephone number:

DTE Wickliffe, LLC 414 South Main Street Suite 600 Ann Arbor, Michigan 48104 (734) 302.4800 Contact: Charles K. Holt

### B. DESCRIPTION OF THE PROPOSED SITE.

The proposed Facility will be constructed within the boundaries of the existing MeadWestvaco Paper Mill near the City of Wickliffe. With the exception of the MeadWestvaco Paper Mill property, of which the proposed site is a part, the proposed location is approximately 2500 feet from the nearest property line and is not expected to impact the surrounding area in any way - (See picture below).

In addition to its location well within the boundaries of the existing industrial site, the project is far from any residential structures, schools and public or private parks. There are no schools located within a two mile radius of the facility and the nearest residential structures or parks of any kind are located in the City of Wickliffe approximately 1 mile north of the proposed site. Topographical map and aerial photograph of facility and surrounding area are provided as Exhibit A1 and A2 respectively.



### C. PUBLIC NOTICE

In accordance with KRS 278.706(2)(c), public notice was given on or before April 8, 2005. Notice was provided to the adjacent landowner and was published in a local newspaper (The Advance Yeoman) of general circulation in Ballard County, Kentucky to notify the general public. Copies of the notice and proof of receipt/publishing are attached hereto as Exhibit C.

### D. STATEMENT OF COMPLIANCE

The applicant hereby certifies that the proposed plant will be in compliance with all local ordinances and regulations concerning noise control and with any local planning and zoning ordinances. Since no planning and zoning commission with jurisdiction over the area currently exists, there are no specified setback requirements with which to comply.

### E. SETBACK REQUIREMENTS

The proposed facility will not be located on the site of a former coal processing plant, nor will it utilize waste-coal in any way. Further, the jurisdiction in which the Facility is proposed to be located has not established setback requirements.

### F. PUBLIC INVOLVEMENT ACTIVITIES

In March 2005, DTEW in conjunction with MeadWestvaco met with officials of the local community to provide background for the project. In attendance were the Honorable Robert Buchanan – County Judge Executive and the Mayor of the neighboring community (the City of Wickliffe) Mr. S. L. Mayola. Due to the small size of this project and its location within the boundaries of the MeadWestvaco Paper Mill DTEW has not undertaken an expensive public involvement program.

There have been no instances of media coverage, direct mailing, fliers, newsletters, public meetings, establishment of a community advisory group or any other efforts to obtain public involvement in the process with the exception of those public notices required as part of this application process and the meetings described herein.

#### G. CONSIDERATION OF ALTERNATIVE SITES

The safe and reliable operation of this facility requires it to be in close proximity to the source of steam. For that reason alternative site consideration was limited to only those locations within the boundaries of the MeadWestvaco Paper Mill. No other location was satisfactory to both MeadWestvaco and DTEW.

#### H. PROOF OF SERVICE

Service was made to County Judge Executive Robert Buchanan. No other planning officials have jurisdiction over this location. An affidavit verifying service will be filed with the Public Service Commission and is attached hereto as Exhibit H.

### I. EFFECT ON ELECTRICITY TRANSMISSION SYSTEM

In order to evaluate the potential impact of this project on the transmission system in Kentucky, DTEW enlisted the expertise of NEI Electric Power Engineering. As their report (attached hereto as Exhibit I) explains, the electricity generated from the proposed facility will not physically be delivered to the electricity transmission system. Due to the existing and projected demand of the MeadWestvaco Paper Mill, the electricity generated by the proposed facility will be utilized on-site, thereby reducing the loading on the transmission lines in the area. The addition of this project should improve stability and reliable electricity transmission in the area.

### J. LOCAL ECONOMIC IMPACT

In addition to providing jobs to local contractors in support of construction, environmental and surveying services, the project will provide long term financial benefits to MeadWestvaco thereby making it a more competitive and stable employer in the community.

Additional positive impacts will be realized to the area as a result of the purchase of incremental fuel for the project in the form of wood waste. These purchases are expected to be made from local suppliers and delivered to the site by local trucking firms providing an additional long term economic benefit that reaches beyond the City of Wickliffe.

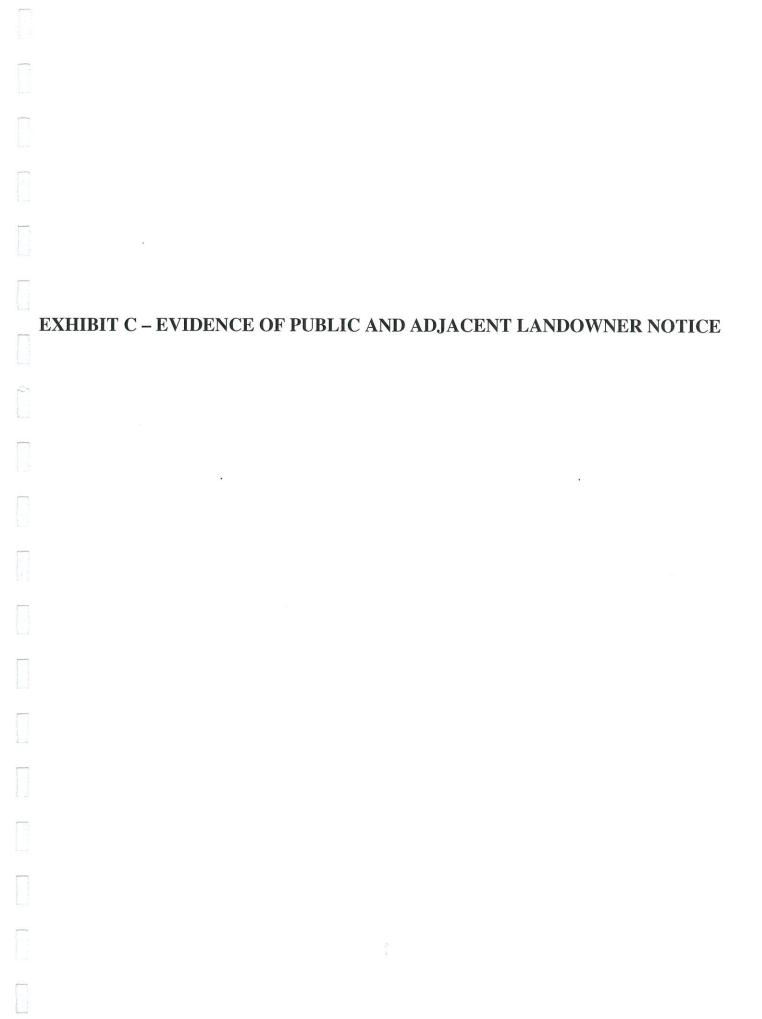
### K. ENVIRONMENTAL RECORD

Neither DTEW nor the 100% owner of DTEW (DTE Pulp and Paper Holdings, LLC) has any past or pending environmental violations of any kind.

### L. SITE ASSESSMENT REPORT

Pursuant to KRS 278.706(2)(1) a site assessment report has been prepared and attached hereto as Exhibit L (Document Tab 2).

## **EXHIBITS**



### KENTUCKY STATE BOARD OF ELECTRIC GENERATION AND TRANSMISSION SITING CASE NO. 2005-00108

### AFFIDAVIT OF SERVICE TO ADJACENT PROPERTY OWNERS

Comes the undersigned Affiant, and after first being duly sworn upon his oath states as follows:

- 1. That my name is George L. Seay, Jr.;
- 2. That I am an attorney duly licensed to practice law within the Commonwealth of Kentucky;
- 3. That I represent DTE Wickliffe, LLC, in its application to the Kentucky State Board on Electric Generation and Transmission. In compliance with the requirements of KRS 278.706(2)(h), I hereby certify that a notice of the intent of DTE Wickliffe, LLC has been served upon Mr. Gregory C. Hansrote. MeadWestvaco Corporation is the adjoining property owner on all sides of the proposed site for the facility herein.
- 4. I hereby certify that the application in the above referenced matter was forwarded to Mr. Hansrote on this the 8<sup>th</sup> day of April, 2005, and by Certified Mail, Return Receipt Requested and by facsimile.

Further, Affiant sayeth naught, this the Harday of April, 2005.

George L. Seay, Jr

COMMONWEALTH OF KENTUCKY )
COUNTY OF FRANKLIN ) :S
The foregoing instrument was subscribed and sworn to before me this day of April, 2005, by George L. Seay, Jr
My commission expires: Movember 14, 2006.
Eve-Marie D. Chonglewshi' NOTARY PUBLIC

25018950.2

MeadWestvaco Corporation 1724 Westvaco Road P O Box 278 Wickliffe, KY 42087 Papers Group T 270 335 4000

### MeadWestvaco

April 8, 2005

The Honorable George L. Seay, Jr. Wyatt, Tarrant & Combs, LLP P. O. Box 495
Frankfort, KY 40602-0495

RE:

DTE Wickliffe LLC

Application to Construct a Merchant Electric Generating Facility Kentucky State Board of Electric Generation and Transmission Siting Case No. 2005-00108

Dear Mr. Seay:

On behalf of MeadWestvaco Corporation, I am in receipt of the Notice of Intent to Construct a Merchant Electric Generating Facility within the boundaries of the MeadWestvaco paper mill located in Ballard County, Kentucky. MeadWestvaco has no objection to the construction and in fact is very supportive of the project.

It is the intent of MeadWestvaco to lease to DTE Wickliffe, LLC property located within the boundaries of its paper mill for the purpose of the construction and operation of the turbine generator.

On behalf of MeadWestvaco, I understand that there will be a deviation requested from the requirement that the facility be 1000 feet from the property boundary of adjacent property owners. MeadWestvaco does not have any objection to the deviation requested.

Our company is very supportive of this project and believe that it is an environmentally safe, sound and effective way to maximize the utilization of energy.

If I may be of any further service, please do not hesitate to contact me.

Sincerely,

Gregory C. Hansrote

Vice President - Wickliffe Operations

# Serving an eight-county area for more than 100 years



# KENTUCKY PUBLISHING, INC.

701 Jefferson Street
Paducah, KY 42001
Tel: 270/442-7389 ~ Fax: 270/442-5220
Email: tleneave@comcast.net

# Affidavit of Publication

THE WEST KENTUCKY NEWS; THE CARLISLE COUNTY NEWS; THE ADVANCE YEOMAN; THE LIVINGSTON LEDGER; THE PADUCAH BUSINESS JOURNAL AND THE TOURIST GUIDE

WYATT, TARRANT & COMBS, LLP ATTN: GEORGE SEAY PO BOX 495 FRANKFORT, KY 40602

Re: DTE PUBLIC NOTICE AD

Fax: 502-227-7681

This Affidavit of Publication is to notify you of the DTE public notice which ran in The Advance Yeoman on April 6, 2005.

Total price \$52.50

Thank you for your business!

TERESA LENEAVE, OFFICE MANAGER

NOTARY

Teresa Sullivan LeNeave

On <u>11</u> day of <u>APRIL</u>, <u>2005</u> My commission expires <u>APR/2006</u>



# **A salute to 25** ears of business

See pages 8 & 9

Inserted Inside....



PROUDLY SERVING BALLARD FOR 116 YEARS

# HE ADVANCE YEOMA

WEDNESDAY April 6.

In God we trust

Recently, Mayor Parris dis-

### PUBLIC NOTICE

DTE Wickliffe, LLC, a wholly owned affiliate of DTE Energy Services, Inc., proposes to install a 13 megawatt turbine generator utilizing steam as the energy source, at the MeadWestvaco Kentucky, LP paper mill located at 1724 Westvaco Road, Wickliffe, Ballard County, Kentucky. The facility will be located within the current mill and will utilize steam generated by four existing boilers as the energy source. The steam will be produced within the operating limits of the existing permits. The facility will be housed in a two story steel sided building approximately 30x50 feet, located within the existing paper mill. No construction of outside electrical transmission lines will be required. Grid access is available within or adjacent to the paper mill site. The proposed construction of the power plant is subject to approval by the Kentucky State Board on Electric Generation and Transmission Siting, which can be reached through the Public Service Commission, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40601, 502-564-3940.

## **EXHIBIT H - PROOF OF SERVICE**

### KENTUCKY STATE BOARD OF ELECTRIC GENERATION AND TRANSMISSION SITING CASE NO. 2005-00108

### AFFIDAVIT OF SERVICE

	Comes	the	undersigned	Affiant,	and	after	first	being	duly	sworn	upon	his	oath	states	as
follows	s:														

- 1. That my name is George L. Seay, Jr.;
- 2. That I am an attorney duly licensed to practice law within the Commonwealth of Kentucky;
- 3. That I represent DTE Wickliffe, LLC, in its application to the Kentucky State Board on Electric Generation and Transmission. In compliance with the requirements of KRS 278.706(2)(h), I hereby certify that a copy of the Application in this proceeding has been served upon Judge Robert Buchanan, County Judge Executive, Ballard County, Kentucky. There are no other municipal corporations or public agencies with land use planning jurisdiction over the proposed facility.
- 4. I hereby certify that the application in the above referenced matter was forwarded to Judge Buchanan, by Federal Express, on the this the \_\_\_\_ day of April, 2005, and by \_\_\_\_\_.

  Further, Affiant sayeth naught, this the \_\_\_\_ day of April, 2005.

George L. Seay, Jr.

COMMONWEALTH OF KENTUCKY )
COUNTY OF FRANKLIN ) :S
The foregoing instrument was subscribed and sworn to before me this $\_\_$ day of April, 2005, by George L. Seay, Jr
My commission expires:
NOTARY PUBLIC

25018947.1 4/11/2005 3:46 PM

1



# Bob Buchanan

Ballard County Judge/Executive P.O. Box 276 • 257 North 4th Street Wickliffe, Kentucky +2087



Phone (270) 335-5176

Magistrates: Richard Burnley Bob Renfrow Charles Allred Victic Vinjard Bill Marshall

April 13, 2005

Hon. George L. Seay, Jr. Wyatt Tarrant & Combs, LLP P.O. Box 495 Frankfort, KY 40601

RE: DTE Wickliffe, LLC

Application to Construct a Merchant Electric Generating Facility Kentucky State Board of Electric Generation and Transmission Siting Case No. 2005-00108

Dear Mr. Seay

This will confirm that I have received a copy of the Application of the above referenced project in my capacity as County Judge Executive of Ballard County. The application is available in my office for review by anyone who would desire to review that application. If I may be of any further assistance, please do not hesitate to contact me.

Sincerely,

Bob Buchanan

Ballard County Judge Executive

EXHIBIT I – TRANSMISSION SYSTEM IMPACT STUDY



P.O Box 1265 • Arvada, CO 80001 Phone (303) 431-7895 • Fax (303) 431-1836 www.neiengineering.com

# STUDY RESULTS EFFECT OF GENERATION ADDITION ON WESTVACO SUBSTATION AND KENTUCKY UTILITIES 69KV LINE

### **SUMMARY**

The major effect resulting from the addition of generation in the proposed location is to reduce loading on the three 69kV-13.8kV substation transformers in Westvaco Substation and reduce loading on the 69kV Kentucky Utilities line. No adverse shifts in power flow inside the distribution system due to the generation addition were seen. The addition of generation will also improve voltage regulation on the 13.8kV distribution system.

Some consideration will have to be given to protection of the 69kV system, the Westvaco Substation, and the Wickliffe Substation due to adding generation behind the Westvaco substation transformers. This might take the form of a transfer trip to the generator from Kentucky Utilities to prevent the new generation from feeding a ground fault on the 69kV system.

### **GENERAL CONDITIONS**

The paper plant is fed from three delta-wye 69kV-13.8kV 12MVA base-rated transformers in Westvaco Substation. These transformers are designated T-UTA-1 (or TX-5351), T-UTB-1 (or TX-5352), and T-UTA-2 (or TX-5353). Westvaco substation is fed via a 73MVA 69kV overhead line from Wickliffe Substation. Two 13.8kV feeders supply the plant from Westvaco Substation. Inside the plant transformer T-UTA-1 feeds bus "A" and T-UTB-1 feeds bus "B".

For this study it was assumed that transformers T-UTB-1 and T-UTA-2 are paralleled at Westvaco Substation and together feed bus "B". T-UTA-1 feeds bus "A" and buses "A" and "B" are connected together through breaker BKR-01.

Kentucky Utilities supplied us with the present loading on the 69kV line feeding Westvaco Substation. This peak load was determined to be 48MW and 17.8MVAR or 51.19MVA.

### LOAD FLOW: PRESENT CONDITIONS

A load flow study was done using EDSA software and information supplied by Kentucky Utilities and DTE Energy Services. Presently the 69kV line feeding Westvaco Substation is loaded to 48 MW, 17.8 MVAR, and 51.19 MVA or 70% of its capacity. Power factor at the Westvaco substation seems to be satisfactory.

Power flow through the substation transformers into the plant was calculated to be:



P.O Box 1265 • Arvada, CO 80001 Phone (303) 431-7895 • Fax (303) 431-1836 www.neiengineering.com

TRANSFORMER	REAL POWER	REACTIVE POWER	APPARENT POWER	PERCENT OF TRANSFORMER BASE CAPACITY
T-UTA-1	17.4 MW	6.0 MVAR	18.04 MVA	150.5%
T-UTB-1	15.2 MW	5.6 MVAR	16.20 MVA	135.0%
T-UTA-2	15.7 MW	5.7 MVAR	16.7 MVA	139.2%

All transformers are loaded above base ratings.

Power flow through the tie between bus "A" and bus "B" was calculated to be 6764 kW flowing from bus "B" to bus "A" and 1827 kVAR flowing from bus "B" to bus "A".

Power flow through the tie in Westvaco Substation which parallels transformer T-UTB-1 and T-UTA-2 was calculated to be 15.6 MW and 4 MVAR, or 16.01 MVA.

Voltage drop on the 13.8kV buses is satisfactory, and the worst voltage drop was calculated as 0.041 pu on the bus being fed by transformer T-UTA-1.

### LOAD FLOW: AFTER GENERATOR ADDITION OPERATED AT 1.0 PF

With the generator added at the proposed location, and the generator operating at a power factor of 1.0, power flow into Westvaco Substation from the 69kV Kentucky Utilities line was reduced to 34.6MW and 15 MVAR, or 37.7 MVA. This effect of the generation is to reduce the loading on the 69kV line to 51.6% of its capacity. Power factor remains essentially unchanged.

Power flow through the substation transformers into the plant was calculated to be:

TRANSFORMER	REAL POWER	REACTIVE POWER	APPARENT POWER	PERCENT OF TRANSFORMER BASE CAPACITY
T-UTA-1	11.5 MW	5.3 MVAR	12.66 MVA	105.5%
T-UTB-1	11.3 MW	4.8 MVAR	12.28 MVA	102.3%
T-UTA-2	11.7 MW	4.9 MVAR	12.68 MVA	105.6%

All transformers are loaded slightly above their base ratings but loading is greatly reduced with generation on-line.

Power flow through the tie between bus "A" and bus "B" was calculated to be 1024 kW flowing from bus "A" to bus "B" and 1714 kVAR flowing from bus "B" to bus "A". Both real and reactive power flows through this tie are greatly reduced with the addition of generation.



P.O Box 1265 • Arvada, CO 80001 Phone (303) 431-7895 • Fax (303) 431-1836 www.neiengineering.com

Power flow through the tie in Westvaco Substation which parallels transformer T-UTB-1 and T-UTA-2 was calculated to be 11.7 MW and 4 MVAR, or 12.36 MVA. Addition of generation also reduces the power flow through this tie.

Voltage drop is improved with generation on-line, and the worst voltage drop is reduced to 0.036 pu.

### LOAD FLOW: AFTER GENERATOR ADDITION OPERATED AT 0.975 LAG PF

The study showed that the optimum operating power factor of the generator is 0.975 lag. Under this operating condition the 69kV Kentucky Utilities line delivers 35 MW and 10.7 MVAR, or 36.6 MVA. This reduces the load on this line to 50.1% of its capacity.

Power flow through the substation transformers into the plant under this loading condition was calculated to be:

TRANSFORMER	REAL POWER	REACTIVE POWER	APPARENT POWER	PERCENT OF TRANSFORMER
•			•	<b>BASE</b> CAPACITY
T-UTA-1	11.8 MW	3.5 MVAR	12.31 MVA	102.6%
T-UTB-1	11.5 MW	3.5 MVAR	12.02 MVA	100.0%
T-UTA-2	11.9 MW	3.6 MVAR	12.43 MVA	103.6%

Power flow through the tie between bus "A" and bus "B" was calculated to be 646 kW flowing from bus "A" to bus "B" and 726 kVAR flowing from bus "A" to bus "B". Both real and reactive power flows through this tie are reduced when operating the generator at 0.975 lag. This operating condition minimizes the power flow over this tie.

Power flow through the tie in Westvaco Substation which parallels transformer T-UTB-1 and T-UTA-2 was calculated to be 11.8 MW and 3.0 MVAR, or 12.17 MVA. Operating the generator at a 0.975 lagging power factor further reduces the power flow over this tie.

Voltage drop further improves and the worst voltage drop is calculated to be 0.025 pu.

### POWER FLOW CONCLUSION

The changes in power flow through the system are shown in the tables below.



P.O Box 1265 • Arvada, CO 80001 Phone (303) 431-7895 • Fax (303) 431-1836 <u>www.neiengineering.com</u>

,	69kV Line MW	69kV Line MVAR	69kV Line MVA	T-UTA-1 MW	T-UTA-1 MVAR	T-UTA-1 MVA
NO GENERATION	48.0	17.8	51.19	17.4	6.0	18.04
GENERATOR AT 1.0 PF	34.6	15	37.7	11.5	5.3	12.66
GENERATOR AT 0.975 PF	35	10.7	36.6	11.8	3.5	12.31

	T-UTB-	T-UTB-	T-UTB-	T-UTA-	T-UTA-	T-UTA-
	MW	MVAR	MVA	MW	2 MVAR	2 MVA
NO GENERATION	15.2	5.6	16.2	15.7	5.7	16.7
GENERATOR AT 1.0 PF	11.3	4.8	12.28	. 11.7	4.9	12.68
GENERATOR AT 0.975 PF	11.5	3.5	12.02	11.9	3.6	12.43

	T-UTA-1	T-UTB-1	T-UTA-2
	% LOAD	% LOAD	% LOAD
NO GENERATION	150.5	135.0	139.2
GENERATOR AT 1.0 PF	105.5	102.3	105.6
GENERATOR AT 0.975 PF	102.6	100.0	103.6

	TIE A-B KW	TIE A-B KVAR	TIE A-B KVA
NO GENERATION	6764	1827	7006.4
GENERATOR AT 1.0 PF	1024	1714	1996.6
GENERATOR AT 0.975 PF	646	726	971.8





3	TRANSFORMER	TRANSFORMER	TRANSFORMER
	TIE	TIE	TIE
	MW	MVAR	MVA
NO	11.7	4.0	12.36
GENERATION			10-4C-1-10-04-05-00-100
GENERATOR AT	11.7	4.0	12.36
1.0 PF		9347395505	**************************************
GENERATOR AT	11.8	3.0	12.17
0.975 PF			,,

	WORST
	VOLTAGE DROP
NO	0.041 pu
GENERATION	_
GENERATOR AT	0.036 pu
1.0 PF	12 100 or 900, <b>x</b> 0000
GENERATOR AT	0.025 pu
0.975 PF	

In all cases the addition of generation reduces loads on the existing system components and improves the voltage drops on all buses.

### PROTECTION CONSIDERATIONS

The addition of generation on the 13.8kV side of the Westvaco substation transformers will require some modification of 69kV system protection. Under the existing system configuration a short circuit on the 69kV system cannot be fed from the 13.8kV system at Westvaco. With the addition of generation, however, a fault on the 69kV system will be fed by the new generation. This poses no real problems in the case of a line-to-line or three-phase fault which can be sensed and tripped by generator protection. However, a line-to-ground fault on the 69kV system may not be adequately sensed by generator protection to allow the generator to be tripped for a fault on the 69kV system.

Some provision must be made to insure that the generators will trip off for a 69kV line-to-ground short circuit. One method that has been successfully implemented on similar installations is to allow the ground fault protection at the far end of the line to send a transfer trip signal to the generator protection. This could be done by allowing the ground fault protection at the Wickliffe Substation to send a transfer trip signal to the new generator breaker to insure that the generator was tripped off whenever a the 69kV line protection tripped. This will prevent the generators from feeding a fault on the 69kV system.



P.O Box 1265 • Arvada, CO 80001 Phone (303) 431-7895 • Fax (303) 431-1836 <u>www.neiengineering.com</u>

Also, if Kentucky Utilities is re-closing the breakers on the 69kV line, the generator must be tripped off before the 69kV breaker re-closes. Alternatively, the re-closing operation should be blocked until the 69kV line is confirmed to be de-energized. This second alternative may require the addition of some equipment at the devices providing the re-closing.

Adding a transfer trip from Kentucky Utilities to the generator would solve both the problem of feeding a ground fault on the 69kV system from the generator and the problem of making sure the generator is off before a re-closing operation occurs on the 69kV line. This transfer trip might be transmitted to the generator via a dedicated fiber-optic line which may have to be installed, via a radio link, or via a dedicated telephone line.

### CONCLUSION

Adding the generator at the location proposed will reduce the load on the incoming 69kV line and the existing substation transformers. Power flow over the existing tie lines will also be reduced. Voltage condition in the plant will be greatly improved with the addition of generation and the optimum operating power factor of the generator was found to be 0.975 lag. No problems in load flow were observed due to the addition of the new generator.

69kV system protection will require some modification with the addition of another source which might feed a fault on the 69kV system. This might take the form of a transfer trip scheme from Kentucky Utilities.

All the power generated should be used inside the plant. It is very unlikely that power flow will reverse to allow power to flow out onto the 69kV system under normal conditions.

#### STUDY METHODOLOGY

This study was performed on April 6, 2005 by:

Keith Malmedal P.E.
Principal Engineer
NEI Electric Power Engineering
5191 Ward Road
Wheat Ridge, Colorado 80033
303-431-7895
303-431-1836
kmalmedal@neiengineering.com

Load flow calculations were done with the aid of EDSA software. Data for the study and system model was provided by Kentucky Utilities and DTE Energy Services.

### EXHIBIT L - SITE ASSESSMENT REPORT

Pursuant to KRS 278.706(2)(1), DTE Wickliffe, LLC ("DTEW") submits the following Site Assessment Report for the proposed construction of a 13MW cogeneration facility. The proposed facility will be owned by DTEW, built on property owned by the MeadWestvaco Paper Mill and leased by DTEW.

The contact responsible for responding to questions concerning information contained in this document is as follows:

DTE Wickliffe, LLC 414 South Main Street Suite 600 Ann Arbor, Michigan 48104 (734) 302.4800 Contact: Charles K. Holt

Following is a Site Assessment Report responsive to items specified in KRS 278.708.

### a) DESCRIPTION OF THE PROPOSED FACILITY

The proposed facility will be an open-loop biomass facility as defined by the American Jobs Creation Act of 2004 – H.R. 4520. Specifically, the facility will use nonhazardous, wood waste material derived from forest-related resources, i.e. mill and harvesting residues, precommercial thinnings, slash and brush.

The waste material will be used as fuel for an existing boiler at the MeadWestvaco Paper Mill and steam from that boiler will be used to drive a turbine generator, which in turn will generate approximately 13MW of electricity. The electricity will be delivered to the transmission grid by connecting at the existing Westvaco Substation owned by Kentucky Utilities and located within the MeadWestvaco mill.

#### (1) SURROUNDING LAND USES

The proposed site is well within the boundaries of the existing MeadWestvaco Paper Mill and is surrounded on all sides by property owned and utilized by the MeadWestvaco Paper Mill. No alternative uses for the property are currently being considered.

A map identifying the nearest residence and parks is attached hereto as Appendix L1 – Proximity to Sensitive Areas. There are no schools within a two mile radius of the proposed site.

### (2) LEGAL BOUNDARIES OF THE SITE

The site will consist of the existing boiler and the building containing the boiler and related equipment as well as the proposed new construction for the addition of the steam turbine generator and its building. The construction of a new building to house the turbine generator will be approximately 38' x 50'. The legal description of the site is as follows:

A certain tract of land described for lease agreement. Located in the MeadWestvaco Kentucky, LP, fine paper division plant in Wickliffe, Ballard County, Kentucky. Located north of the East-West Plant road and east of the North-South Plant road and further described as follows;

Beginning at the northwest corner of the existing bark boiler building. Said corner being located East at right angles for a distance of 192 feet +/- from a point in a line between Monument #5 and Monument #1 shown on the Westvaco "Mill Property Layout" drawing dated 8/11/93. Said point being located South for a distance of 696 feet +/- from Monument #5.

THENCE from the point of beginning South 00 degrees 00 minutes 00 seconds East for a distance of 78.50 feet with the west face of said build to the southwest building corner;

THENCE North 90 degrees 00 minutes 00 seconds East for a distance of 73.83 feet with the south face of said building to a point;

THENCE South 90 degrees 00 minutes 00 seconds East for a distance of 59.50 feet with the west face of the proposed turbine generator building to the southwest corner of said proposed building;

THENCE North 90 degrees 00 minutes 00 seconds East for a distance of 32.85 feet with the south face of said proposed turbine generator building to the southeast corner of said proposed building;

THENCE North 00 degrees 00 minutes 00 seconds East for a distance of 58.51 feet with the east side of said proposed turbine generator building to the northeast corner of said proposed building;

THENCE North 90 degrees 00 minutes 00 seconds West for a distance of 22.17 feet with the north face of said proposed turbine generator building to a point;

THENCE North 00 degrees 00 minutes 00 seconds East for a distance of 79.50 feet with the east face of said bark boiler building to the northeast corner of said building;

THENCE North 90 degrees 00 minutes 00 seconds West for a distance of 84.50 feet with the north face of said building to the point of beginning;

Said lease contains 0.1966 acres more or less.

Bearings shown hereon are based on plant coordinates shown on the Westvaco "Mill Property Layout" drawing dated 8/11/93.

### (3) PROPOSED ACCESS CONTROL TO THE SITE

It is anticipated that access to the site would be managed and supervised by the existing MeadWestvaco security personnel in the same manner in which access is currently controlled. This includes limiting access to those personnel which are 1) authorized by MeadWestvaco; or 2) accompanied by a MeadWestvaco employee. All ingress and egress to the facility is expected to continue to be through the secure, manned gate of the MeadWestvaco Paper Mill.

(4) THE LOCATION OF FACILITY BUILDINGS, TRANSMISSION LINES AND OTHER STRUCTURES

The aerial photograph identified as Appendix L 4 - PROPOSED INTERCONNECTIONS, attached hereto identifies the proposed site, its facility buildings, transmission lines and relevant structures.

(5) LOCATION AND USE OF ACCESS WAYS, INTERNAL ROADS AND RAILWAYS

The aerial photograph identified as Appendix L5 – INGRESS AND EGRESS ROUTING, attached hereto identifies the MeadWestvaco gate security building and the anticipated internal

1

mill roads that will provide access to the proposed site. While the delivery of additional wood waste for use as fuel for the project is expected to require an average of seven additional trucks per day, no use of railways is anticipated as a result of this project.

### (6) EXISTING OR PROPOSED UTILITIES TO SERVICE THE FACILITY

This facility will consist of an existing, biomass-fueled boiler which is currently operating on the MeadWestvaco site and the addition of the steam turbine generator proposed herein. Since all of the utilities required by the steam turbine generator already exist in the boiler building adjacent to the proposed construction site, MeadWestvaco will provide the utility requirements from the facility from existing sources. Only minor interconnecting piping is expected to be required.

### (7) COMPLIANCE WITH APPLICABLE SETBACK REQUIREMENTS

As a result of the location of this project within the boundaries of the MeadWestvaco Paper Mill, the proposed site is surrounded on all sides by property owned by MeadWestvaco making a setback from the neighboring property impossible. Accordingly, we respectfully request a deviation from the requirements outlined in KRS 278.708(3)(a)(7) and KRS 278.704(2) as more fully described in a copy of that request attached hereto as Appendix L7.

Notwithstanding the above proximity to the MeadWestvaco Paper Mill property, the proposed site is greater than 1000 feet from the nearest property line shared by MeadWestvaco and any other parties.

### (8) EVALUATION OF THE NOISE LEVELS EXPECTED TO BE PRODUCED

The proposed facility will be in compliance with all local and OSHA noise ordinances. Furthermore, the proposed location is expected to produce only minimally discernable sound at the external MeadWestvaco property line due to 1) its small size; 2) the fact that buildings exist and will continue to exist between the steam turbine generator and the direction of the nearest residence; and 3) the proposed construction of a building to shelter the steam turbine generator and attenuate the sound produced during operation.

### b) COMPATIBILITY WITH SCENIC SURROUNDINGS

The new construction for the proposed facility will occupy a small piece of land on the interior of the MeadWestvaco Paper Mill and as such will not be apparent from property outside of the mill itself. DTEW will design and construct the steam turbine generator building to blend in with the industrial use buildings surrounding the proposed site. Given the surroundings of the proposed location, no additional area beautification measures are anticipated in conjunction with this project.

### c) IMPACT ON SURROUNDING PROPERTY VALUES

The proposed project is not expected to have any impact on the value of surrounding property.

### d) ANTICIPATED NOISE LEVELS

The proposed facility will be in compliance with all local and OSHA noise ordinances. Furthermore, the proposed location is expected to produce only minimally discernable sound at the external MeadWestvaco property line due to 1) its small size; 2) the fact that buildings exist and will continue to exist between the steam turbine generator and the direction of the nearest residence; and 3) the proposed construction of a building to shelter the steam turbine generator and attenuate the sound produced during operation.

### e) IMPACT ON ROAD AND RAIL TRAFFIC

The delivery of additional wood waste for use as fuel for the project is only expected to require an average of seven additional trucks per day. No use of railways is anticipated as a result of this project. Given the minor impact of this additional traffic, no additional degradation of the surrounding roads or lands is expected and no mitigation plans are anticipated.

APPENDIX L1 – PROXIMITY TO SENSITIVE AREAS

### APPENDIX L4 – PROPOSED INTERCONNECTIONS

APPENDIX L5 – INGRESS AND EGRESS ROUTING

APPENDIX L7 – REQUEST FOR DEVIATION FROM SETBACK REQUIREMENTS

### KENTUCKY STATE BOARD OF ELECTRIC GENERATION AND TRANSMISSION SITING CASE NO. 2005-00108

# Request for a Deviation from Requirements of KRS 278.706(3)(a)(7), KRS 278.704(2)

Comes now the Applicant, by counsel, and requests that the Kentucky State Board on Electric Generating and Transmission Siting approve this deviation request from the set back requirements set forth in KRS 278.704(3). The only deviation that is required relates to the requirement that the facility be 1000 feet from the property boundary of any adjoining property owner. The property owner on all sides of the proposed location is MeadWestvaco Corporation.

As you are aware, this project is being implemented in cooperation with MeadWestvaco in Ballard County, Kentucky. The turbine generating facility will be constructed on property which is within the boundaries of the MeadWestvaco paper mill. MeadWestvaco is the host and is granting a leasehold of property for the construction of the building necessary to house the turbine generator and is also leasing to DTE Wickliffe, LLC the necessary boilers and associated facilities. There is not enough property available to lease to DTE Wickliffe, LLC an area which would provide a 1000 foot setback from the leasehold boundary. MeadWestvaco does not object to the deviation requested herein. Additionally, this request for deviation does not in any way conflict with the goals of the statutes set out in KRS 278.704(4).

WHEREFORE, DTE Wickliffe, LLC respectfully requests that it be granted a deviation from the 1000 foot setback requirement. No other deviations are necessary or are required.

This the \_\_\_\_ day of April, 2005.

George L. Seav. Jr.

Counsel for DTE Wickliffe LLC

## **CERTIFICATE OF FILING**

The undersigned hereby certifies that a copy of the Request for Deviation was filed with the Kentucky State Board of Electric Generation and Transmission Siting, this \_\_\_\_ day of April, 2005:

George L. Seay Jr.

Wyatt, Tarrant & Combs, LLP

311 West Main Street

P.O. Box 495

Frankfort, KY 40602-0495

(502) 223-2104

25018949.1 4/7/2005 1:01 PM

MeadWestvaco Corporation 1724 Westvaco Road P O Box 278 Wickliffe, KY 42087 Papers Group T 270 335 4000

### MeadWestvaco

April 8, 2005

The Honorable George L. Seay, Jr. Wyatt, Tarrant & Combs, LLP P. O. Box 495
Frankfort, KY 40602-0495

RE:

DTE Wickliffe LLC

Application to Construct a Merchant Electric Generating Facility Kentucky State Board of Electric Generation and Transmission Siting Case No. 2005-00108

Dear Mr. Seay:

On behalf of MeadWestvaco Corporation, I am in receipt of the Notice of Intent to Construct a Merchant Electric Generating Facility within the boundaries of the MeadWestvaco paper mill located in Ballard County, Kentucky. MeadWestvaco has no objection to the construction and in fact is very supportive of the project.

It is the intent of MeadWestvaco to lease to DTE Wickliffe, LLC property located within the boundaries of its paper mill for the purpose of the construction and operation of the turbine generator.

On behalf of MeadWestvaco, I understand that there will be a deviation requested from the requirement that the facility be 1000 feet from the property boundary of adjacent property owners. MeadWestvaco does not have any objection to the deviation requested.

Our company is very supportive of this project and believe that it is an environmentally safe, sound and effective way to maximize the utilization of energy.

If I may be of any further service, please do not hesitate to contact me.

Sincerely,

Gregory C. Hansrote

Vice President - Wickliffe Operations